

continuous to the aperture, and in the second being much longer, as well as in the lengthened form of the second palatal plica; outwardly in the raised high form of the apertural parietal ridge. There are two specimens from the same locality in the Museum; and in both the characters are identical.

Besides describing this new species, I have the following remarks to make on the species mentioned in my previous communication.

The species known as *P. refuga*, Gould, var. *dextrorsa*, from Philé Thaw, is very close to *P. pseudophis*. It is a sinistral form, with these differences—that the vertical parietal plica is rounded, not notched as in *P. pseudophis*, and the long free horizontal lamella beneath it is absent altogether.

This form should now stand as a distinct species, under the title *Plectopylis dextrorsa*.

Again, *Helix (Plectopylis) refuga*, Gould (figured by Philippi, Abbild. und Beschr. Conch. pl. x. fig. 4), is the same shell as *P. leiophis*, Bs., the former name having the priority by eleven years; but in the original description the internal arrangement of the epiphragms is not noticed.

Calcutta, Nov. 13, 1874.

February 2, 1875.

Dr. A. Günther, F.R.S., V.P., in the Chair.

Mr. Sclater exhibited a fine skin and skull of a female Huemul (*Cervus chilensis*), and a pair of horns of an adult male forwarded by Mr. Edwyn C. Reed, C.M.Z.S., of the National Museum, Santiago, Chili, and read the following communication from him on the subject:—

“The Huemul is found near Sandy Point, Straits of Magellan, where our collector obtained a skin some ten years ago.

“The Chilian men-of-war, exploring the Chonos archipelago, have killed one or two each year for the last three or four years on the mainland, near the river Aysen, which may be in latitude 45° S. The skin now sent was obtained there.

“An old specimen (♂) in the Museum collection is said to have been killed in the Andes in the latitude of Concepcion, say 37° S.

“I have recently seen a pair of horns of a specimen killed a few years ago near the baths of Canquenes, 34° 30' S. Some animals (mules or mares or both) had been a long time in a mountain pasturage; and when driven in, the Huemul came with them to the ‘corral,’ where it was lassoed and killed. The owner heard of it in time to get the horns.

“Thus we may conclude that the Huemul is found in the Andes on either side from Magellan to near Santiago, but far more rarely in the north than in the southern portion of its range.”

Mr. Sclater then made the following observations on this animal

and other species of *Cervus* found on the western slope of the Andes in Peru and Chili:—

“Mr. Reed having requested information as to the correct generic and specific names of this Deer, I answer that, according to my views,



Left horn of *Cervus chilensis* (side view). a. Brow-antler.

already expressed in a short note in the ‘Annals’ for 1873, it is simply *Cervus chilensis*.

“The following appear to be its more recent synonyms:—

“**CERVUS CHILENSIS.**

“*Cervus chilensis*, Gay et Gerv. Ann. d. Sc. Nat. v. p. 91 (1846); Gay, Hist. de Chile, Zool. i. p. 159, pl. ii.; Philippi, Wiegmann. Arch. 1870, pt. i. p. 46; Sclater, Ann. N. H. xi. p. 213 (1873).

“*Capreolus leucotis*, Gray, P. Z. S. 1849, p. 64, Mamm. pl. xii.

“*Huamela leucotis*, Gray, Ann. N. H. x. p. 445 (1872), et *ej.* xi. p. 219 (cum tab.) et p. 309; Gray, Hand-l. of Edent. &c. p. 160.

“As regards *Capreolus leucotis*, the female specimen originally exhibited by Dr. Gray before this Society and figured in our ‘Pro-

ceedings' would appear, from what is stated (P. Z. S. 1849, p. 64), to have been the stuffed specimen now in the Derby Museum at Liverpool*.

"But subsequently (Cat. Ruminants, p. 89) Dr. Gray speaks of the type of *Capreolus leucotis* as being in the British Museum. The skin thus referred to belongs undoubtedly to *Cervus chilensis*, and is registered in the British Museum as from 'Valparaiso.' Presented by the Earl of Derby.' But in the 'Hand-list' (l. s. c.) it is stated to be from "Patagonia."

"In his recent writings Dr. Gray has confused the synonyms of *Cervus chilensis* with those of *Cervus antisiensis* of D'Orbigny, as will be seen by the following list of the terms he has lately applied to the latter.

"CERVUS ANTISIENSIS.

"*Cervus antisiensis*, D'Orb. Nouv. Ann. Mus. iii. p. 91 (1834); ej. Voy. Mamm. p. 28, pl. xx. fig. 1.

"*Cervus antisiensis*, Tsch. F. P. Mamm. p. 241, tab. xviii.; Scl. Ann. N. H. xi. p. 213 (1873).

"*Anomalocera huamel*, Gray, Scient. Opin. 1869, p. 385.

"*Xenelaphus huamel*, P. Z. S. 1869, p. 497.

"*Xenelaphus leucotis*, Gray, Cat. of Rum. p. 89 (1872).

"*Xenelaphus anomalocera*, Gray, Ann. N. H. x. p. 445 (1872), et xi. pp. 220, 309.

"*Xenelaphus chilensis*, Gray, *ibid.* xii. p. 161 (1873); Gray, Hand-l. of Edent. &c. p. 159 (1873).

"*Furcifer chilensis*, Gray, Ann. N. H. xiii. p. 332 (1874).

"Mr. Whitely has sent home from Tinta and the neighbouring Andes of Peru, which he has lately explored, several examples of this species, amongst which was the monstrous-horned male upon which Dr. Gray established his genus *Anomalocera* sive *Xenelaphus*.

"Mr. Whitely writes to me that this Deer is called '*Uiero*' (not *Oieidos*, as miswritten by Dr. Gray, Ann. N. H. 1874), and is found in large troops at a higher elevation than *C. peruvianus*.

"Besides this, Mr. Whitely has likewise obtained in Western Peru heads of two other species of Deer, upon which Dr. Gray has established his *Cervus whitelyi* and *C. peruvianus*.

"The synonyms of these species stand as follows:—

"CERVUS WHITELYI.

"*Cervus whitelyi*, Gray, Ann. N. H. xii. p. 163 (1873).

"*Coassus whitelyi*, Gray, Hand-l. of Edent. &c. p. 162, t. xxxii. fig. 2.

"This species is based upon a single skull of a female obtained near Cosnipata in the Peruvian Andes. As Dr. Gray remarks, it appears to belong to the section *Coassus*, which embraces *Cervus rufus* and its allies. As no Deer of this form has yet been recog-

* Mr. T. J. Moore, the Curator, writes me as follows:—"We have the type of *Cervus leucotis*, Gray, P. Z. S. Mamm. pl. xii. Its height at the shoulder is 36 inches."

nized from Western Peru, it is probably a valid species, of which we may hope to obtain perfect specimens.

"Mr. Whitely sends me the following note on this species:—'The small red Deer which Dr. Gray has had the kindness to name after me is found in the hot valleys; and I can tell nothing about its habits, as it rarely comes out into the clearing, but keeps in the depths of the forests; and if seen it is only for a moment, for its movements are very rapid, and it is quickly lost to sight amongst the dense underwood.'

"CERVUS PERUVIANUS.

"*Furcifer antisiensis*, Gray, Ann. N. H. xii. p. 162 (1873); *id.* Hand-l. of Edent. &c. p. 159, pl. xxxv. fig. 1.

"*Cervus (Coassus) peruvianus*, Gray, Ann. N. H. xiii. p. 332 (1874).

"This species is also based upon a single specimen of a female animal obtained in the Andes of Cuzco by Mr. Whitely, and now in the British Museum. Dr. Gray at first referred it to the *Cervus antisiensis* of D'Orbigny, and subsequently to the subgenus *Coassus*. It has, however, I believe I may safely say, on the authority of Sir Victor Brooke, as little to do with the one as with the other, but belongs, so far as can be told from the single skull, apparently to one of the southern diminutives of either *C. virginianus* or *C. columbianus*.

"Mr. Whitely speaks of this Deer as the 'Venado' of the natives, and says that it goes in pairs or small troops at a lower elevation than *C. antisiensis*; the horns have also a greater number of prongs.

"Whether the second skull (of a male with partly grown irregular horns) which has been referred to this species in the 'Hand-list,' and is there figured (pl. xxxv. fig. 2), really belongs to *C. peruvianus* is very doubtful. It is an old specimen received from this Society's former collection; and its locality is unknown.

"Finally, therefore, we may say that there is evidence of the existence of three Deer in Western Peru—namely *C. (Furcifer) antisiensis*, *C. (Coassus) whitelyi*, and *C. (Cariacus?) peruvianus*. In Chili two species only are known, *C. (Furcifer) chilensis* and *C. (Pudua) humilis*."

Dr. E. Hamilton exhibited and made remarks on some deformed sterna of the Common Fowl, produced by the variety called the "Crève-cœur," and which had been persistent for six years in a farm in France.

The following papers were read:—

1. On the Kangaroo called *Halmaturus luctuosus* by D'Albertis, and its Affinities. By A. H. GARROD, B.A., F.Z.S., Fellow of St. John's College, Cambridge. Prosector to the Society.

[Received January 16, 1875.]

(Plates VII.-IX.)

During the time that H.M.S. 'Basilisk' was cruising in the region of the south-east of New Guinea one of the sailors acquired a specimen of a small Kangaroo, which Signor L. M. D'Albertis, C.M.Z.S., obtained from him at Sydney. In a letter addressed to Mr. Sclater, dated Sydney, N. S. W., December 1, 1873, Signor D'Albertis described this specimen, under the name of *Halmaturus luctuosus*, as follows *:—"Length from the nose to the occiput $4\frac{1}{2}$ inches; length of the ears $1\frac{3}{4}$ inch; length of the thigh $5\frac{3}{4}$ inches; length of the tarsus, including the nail, $4\frac{3}{4}$ inches; length of the tail $11\frac{1}{2}$ inches. Total length, from the nose to the tip of the tail, 2 feet 5 inches. Its weight is $7\frac{1}{2}$ pounds.

"The fur is short, its general colour dark ashy brown with a silvery tinge, white at the roots; chin, throat, and chest white, with two horizontal ashy stripes under the pouch; on the top of the head a silvery whitish spot; the thighs more grey; feet dark, almost black; the arm white inside; the hand black. The tail moderately strong, of a similar colour to the body, but white and bare of hairs for about an inch at the extremity. The lips are barely covered with fur; the eyelids are puffed, almost naked, and provided with eyelashes so fine as not to be readily seen at first sight."

Hab. "S.E. of New Guinea."

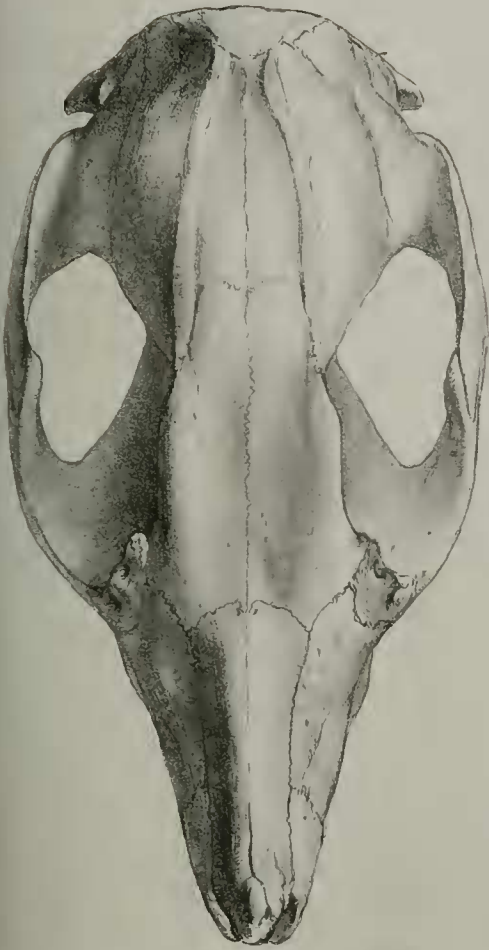
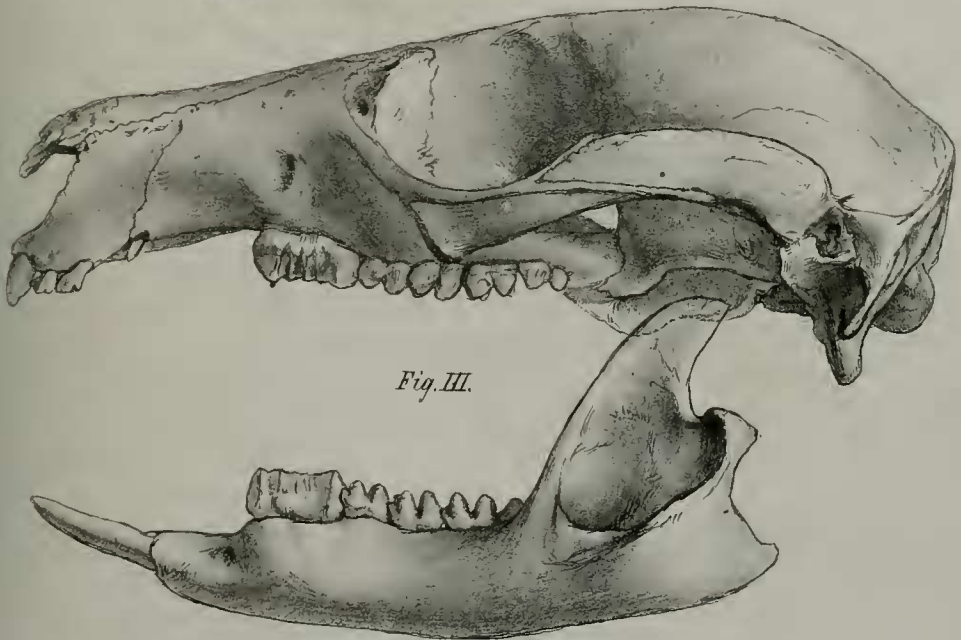
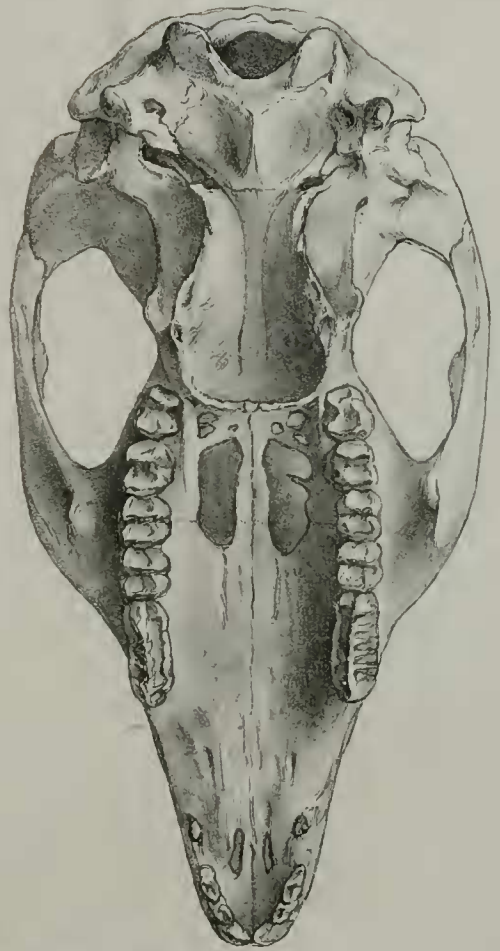
On April 17, 1874, this Kangaroo was deposited by Signor D'Albertis in the Society's Gardens; and at the Meeting for Scientific Business on May 5th following, Mr. Sclater, in reporting on the additions to the Society's Menagerie †, exhibited a drawing of it, and referred to it as "the typical example of *Halmaturus luctuosus* of D'Albertis." It is this specimen, a female, which forms the subject of the present communication. It died, Nov. 24, 1874, with congested lungs, after a severe frost, the first of the commencing winter.

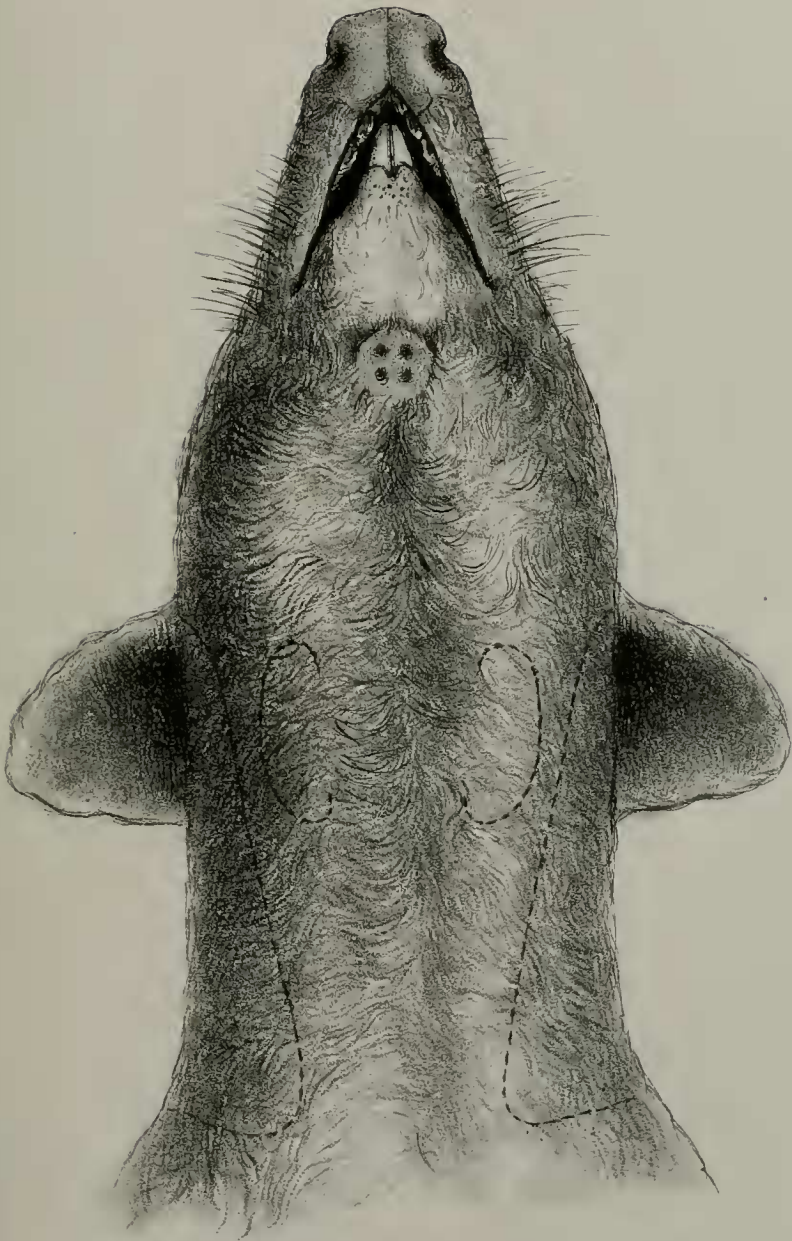
An examination of the dead body, and especially of the mouth, which it was impossible to observe in the living animal, made it evident that the species could not be rightly included in the genus *Macropus* or *Halmaturus*. Further comparison made it clear that it was intimately related to the genus *Dendrolagus*, and also to the species described in Waterhouse's 'Mammalia' ‡ as *Macropus brunii*.

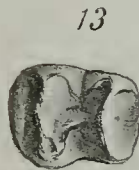
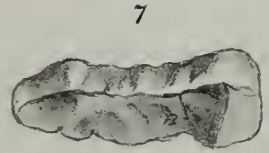
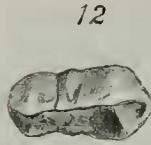
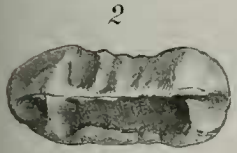
* P. Z. S. 1874, p. 110.

† P. Z. S. 1874, p. 247, pl. xlii.

‡ Vol. i. Marsupiala, p. 180.

Fig I.*Fig II.**Fig. III.*





Mr. Waterhouse bases his description of this last-named species on a skin so labelled in the British Museum, and on Müller's account of the same animal in his elaborate work*, in the letterpress of which it is termed *Dorcopsis brunii*. The priority of the generic name being undisputed, any fresh species which can be shown to be generically related to the above-determined species is evidently a species of the genus *Dorcopsis*.

This last remark is called for because the subject is rendered somewhat involved by an oversight of the illustrious Müller. In his description of his *Dorcopsis brunii* he evidently has no doubt that the specimen or specimens he is considering, is or are identical with the "Philander" described by Bruyn† as having been seen by him in the garden of the Governor of Batavia, upon which the name *brunii* was originally based. Prof. Schlegel‡, however, has most convincingly shown the unjustifiableness of this assumption, and has proved beyond a doubt that the species to which the name Philander can alone be applied is that found only in the islands of Aru and the Ké group, whilst the species which forms the subject of Müller's memoir is a denizen of New Guinea itself. Prof. Schlegel therefore retains the name *Macropus brunii* for the Philander of Aru, and of the New-Guinea animal forms the new species *Macropus muelleri*. As to me it is evident that *M. muelleri* is generically distinct from *Macropus* in its widest sense, and from all its minor divisions, it is also evident that *Dorcopsis muelleri* must be the name applied to the *Dorcopsis brunii* of Müller. The species which forms the subject of the present communication, belonging (as I hope to prove) to the same genus as *Dorcopsis muelleri* (Schlegel), must therefore stand as *Dorcopsis luctuosa* (D'Albertis).

The material at my disposal is the following:—the skin and skeleton of the type specimen of *Dorcopsis luctuosa*; the skins of an adult male and female, as well as of a young male, of *Dorcopsis muelleri* in the British Museum, collected by Mr. Wallace; a skull from the skin of the above-mentioned female of *Dorcopsis muelleri*; the much-discoloured skin of the male of the same species in the British Museum, from New Guinea, described by Mr. Waterhouse§ as *Macropus brunii*; two skeletons of *Dendrolagus inustus*, one in the British Museum and the other in the Museum of the College of Surgeons; as well as a pair of skins and an imperfect skull of *Macropus brunii* from Aru, kindly lent me by Mr. Edward Gerrard.

So far as I know, the visceral anatomy of *Dorcopsis muelleri* has not been described. That of *Dendrolagus inustus* is fully given by Prof. Owen in the 'Proceedings' of this Society ||; and some of the actual specimens on which this description is based are preserved in the Museum of the College of Surgeons. The internal anatomy of *Macropus brunii* is not known.

* Zoogdieren van den Indischen Archipel. pt. 4, pl. xxi.

† Reizen over Moskovie, p. 374, pl. 213 (1713).

‡ Nederlandsch Tijdschrift voor de Dierkunde, 1866, p. 350 *et seq.*

§ 'Mammalia,' vol. i. p. 180.

|| P. Z. S. 1852, p. 103 *et seq.*

The following Table gives the most important measurements of the skin of the female *Dorcopsis luctuosa*, compared with specimens of the same sex of *Dorcopsis muelleri* and *Macropus brunii*.

Lengths &c.	<i>Dorcopsis luctuosa</i> ♀.	<i>Dorcopsis muelleri</i> ♀.	<i>Macropus brunii</i> ♀.
	in.	in.	in.
From tip of nose to base of tail	24	20·25	21·0
Tail	13·25	15·4	11·75
From tip of nose to occiput	5·0	5·0	4·0
Fore limb	5·75	6·75	4·75
Hind limb.....	10·75	12·55	10·5
From heel to end of nail of fourth toe ...	4·75	4·75	5·0
Length of ear	1·4	1·25	1·75
Circumference of base of tail	4·25		2·0
From knee to knee over the back	14·0		17·0

The general contour of the body is quite Macropine; the breadth at the hips, however, is somewhat small. The hair is soft, short, and of a nearly uniform length all over the skin.

The head is elongate and conical, the muffle naked, the eyes large and antilopine. The colour of the upper surface and sides of the head* and back is uniformly blackish with a silvery gloss, each hair being whitish at its base for two fifths of its length, black for the next two fifths, and white at the tip. On the ventral surface a broad longitudinal white band extends from the line joining the angles of the mouth, backwards along the neck and belly as far as the pouch, behind and from the sides of which it continues towards the tail of a true slate-colour as far as the cloacal orifice, between which spot and the base of the tail it is again white. This white band occupies the whole of the region between the angles of the jaw, and continues down the neck over the abdomen of a slightly greater width. It only encroaches on the sides of the body by sending an expansion into each axilla, which is visible laterally just behind the elbow. There is no lateral transverse white stripe across the front of the thigh, like that so strongly marked in *M. brunii*; and, unlike this last named species, the light grey, nearly white stripe above and parallel to the lip is very insignificant, and does not extend backwards under the eye.

The ear is rounded, black inside and out, with a slight white line formed by the similarly coloured roots of the there exposed hairs bounding the auditory meatus anteriorly.

The non-exposed surfaces of both the arm proper and the thigh are of a pale grey. The other parts of both the fore and hind limbs are black. The nails of both the fore and hind limbs are short and Macropine.

* The silvery white spot on the top of the head, mentioned in D'Alberty's description, is not produced by the presence of white hair, but results from the fact that the spot where it is *sometimes* seen is the anterior junction of the forward-directed hair of the neck with the backward-directed hair of the frontal region. Its existence depends entirely on the way in which the hair is brushed; and it is not visible except after the natural disposition has been disturbed.

The peculiarity in the direction of the hair of the neck, which elsewhere occurs only in *Dorcopsis muelleri*, *Dendrolagus ursinus*, and *Dendrolagus inustus*, is as strongly marked as in those species—all the hair covering the space bounded in front by a line running transversely across the parietal region, and behind by two lines joining in the middle line between the shoulders to form a right angle seven inches behind the occiput, and extending forward and outward to the shoulder-joint, being directed forward, whilst the general body-covering of hair is directed normally backwards.

The lips are nearly naked, as is the skin covering the subsymphysial portion of the mandible, just behind which are four large and conspicuous glandular hair-follicles in the middle line, arranged in pairs to form a square (Plate VIII.). A collection of glands of a similar nature is found on the upper eyelid, situated a little nearer the inner than the outer canthus. These are well shown in Müller's drawing of *Dorcopsis muelleri**. A few long hairs are to be found on the sides of the upper lip.

The eyelids are somewhat puffed, almost naked, with the eyelashes scarcely apparent.

The tail is peculiar in being of considerable diameter to near its extremity, and in being uniformly thickly covered, for all but its termination, with soft, not very short, black hair. The skin of the distal end of the tail is black, except for its terminal $1\frac{1}{2}$ inch, where it is nearly white. On the upper part of this white portion there are a few white hairs; elsewhere it is naked and scaly. The scales are also distinctly seen extending forward for a short space over the inferior surface of the black skin, from the absence of hair in that part. The characteristic manner in which the animal employs its tail as a method of support (well shown in P. Z. S. 1874, pl. xlii.), might have almost been predicted from the above-described distribution of the hair; for it is evident that only a part at the extreme end could have habitually come into contact with the ground.

The only brown hair on the body is that in the pouch, which is rufous. There are four mammæ.

There is not the least difficulty in distinguishing *Dorcopsis luctuosa* from *D. muelleri*. The general colour of the head, back, and tail in the specimens of the latter species from Mysol, above referred to, is a mouse-chocolate, which becomes duller over the thighs, and of a pale grey on the outside of the fore limb. In *D. muelleri* the general white of the abdominal surface expands slightly opposite the orifice of the pouch, just above the knees; it, however, does not develop into a band over the flank as in *Macropus brunii*: the white of the throat also extends on to the angle of the jaw, and continues forward to join the dim white stripe along the upper lip; and there is a second insignificant white line under each eye, also (as mentioned by Prof. Schlegel) not nearly so marked as in *M. brunii*. In the male of *D. muelleri* the white tip to the tail is as much as three inches in length.

The skull of *Dorcopsis luctuosa* (Plate VII.) very closely resembles

* Loc. cit. pl. xxii.

that of *D. muelleri*, the following being the two most important measurements in adult specimens of the same sex (female):—

	<i>D. luctuosa</i> . in.	<i>D. muelleri</i> . in.
Length of skull	4·1	4·55
Greatest breadth, from zygoma to zygoma	2·2	2·05

In some minor details there are slight differences. In *D. muelleri*, as in most species of *Macropus*, the premaxillary region is bent downwards in such a way that the line formed by the trenchant edges of the molar teeth, if projected onwards to the nose, is quite above the incisor teeth. In *D. luctuosa* this bending downwards of the snout is not so marked, as will be seen by comparing the side view of the skull (Plate VII. fig. 3) and the similar one of *D. muelleri* in Prof. Müller's elaborate work above referred to.

The palatine foramina, one large one on each side, together with several much smaller ones behind each, in *D. muelleri* end behind the transverse palato-maxillary sutures, whilst in *D. luctuosa* their anterior margins are formed by the palatine plates of the maxillary bones, into which they encroach a short distance. In *D. luctuosa* the upper of the lacrymal foramina in each lacrymal bone has an ossific ridge behind it, which causes it to be completely exserted, or situated on the face outside the orbit; whilst in *D. muelleri* the absence of this bony ridge causes it to be situated in a recess on the margin of the orbit. In *D. luctuosa* the apex of the angular process which is developed downwards from the inferior margin of the maxillary portion of the zygoma, is opposite the anterior cusp of the third molar tooth, whilst in *D. muelleri* it corresponds to the posterior cusp of the second molar.

With regard to the teeth themselves, the canines in *D. muelleri* are quite the size of or even slightly larger than the most lateral incisor; in *D. luctuosa*, however, they are much smaller, being nothing more than slightly curved dentine cylinders about $\frac{1}{35}$ of an inch in diameter, as in the subgenus *Lagorchestes*, and directed downwards and forwards. In both the species the third incisor has an inflection on its labial surface, as in all the species of *Macropus*: in *D. muelleri* this fold is a little in front of the middle of the tooth; and in *D. luctuosa* it is decidedly nearer the posterior border. In the last-named species there is a similar distinct inflection on the second incisor; in *D. muelleri* this is not apparent. In *D. muelleri* the inferior incisor is directed more immediately forward than in *D. luctuosa*, in which it turns slightly upwards; this peculiarity is correlated with the difference in the obliquity of the premaxillary region (*vide* Plate IX.).

In the enormous premolars there is a slight difference—those of *D. muelleri* being a little the larger, in the upper jaw having a breadth of 0·55 inch against 0·475 inch for the same teeth in *D. luctuosa*. In *D. muelleri* the bony septum between the two fangs of each premolar, especially of the lower jaw, is particularly con-

spicuous in the undisturbed tooth, even projecting slightly beyond the osseous alveolar margin. In *D. luctuosa* this septum is scarcely visible.

The most important characters of the skull of *Dorcopsis*, as a genus, which distinguishes it from *Dendrolagus*, are the following:— In *Dendrolagus* the head is proportionally much shorter, the effect of which on the lower jaw is that, as the dental series is not correspondingly reduced, the ramus and the body of each lateral moiety meet at a right instead of an obtuse angle; there are no palatine foramina; the zygoma is considerably deeper; the exoccipital processes are longer, though not much so; the lower incisors are considerably broader, at the same time that the upper lateral incisors are larger and more cylindrical, with superficial grooves which can scarcely be termed inflections; the premolars are not so broad, and their outer posterior tubercles are more distinctly developed.

The molar teeth of *Dorcopsis* and *Dendrolagus* are almost identical (*vide* Plate IX.).

The cranial characters which distinguish *Dorcopsis*, as a genus, from *Macropus* are not very significant. Looking at the base of the skull the arrangement of the teeth deserves attention. In *Dorcopsis* the premolar with the molars on both sides form straight lines which are exactly parallel one to the other; whilst in *Macropus* the molar-premolar series form slight curves, convex outwards, converging behind as well as in front.

In *Dorcopsis* the zygomata are not so powerful or deep from above downwards as in the similar-sized species of *Macropus*. A peculiarity also presents itself in the lateral occipital region, the exoccipitals descending considerably below the free extremities of the paramastoids in *Macropus*, whilst in *Dorcopsis* they reach downwards scarcely any further distance.

Respecting the teeth, *Dorcopsis* differs from *Macropus* in the much diminished size of the superior lateral incisors. The central incisors are not so broad, but nearly as long. The second incisor is very much smaller; and though presenting a slight inflection in *D. luctuosa*, as mentioned above, this inflection is not, as in *Macropus*, posterior and internal, at the line of contact with the anterior margin of its more lateral neighbour. The third incisor is also very much smaller. The inflection on its labial or outer surface presents the same differences in the two species of *Dorcopsis* that are found in the various species of *Macropus*: in *D. luctuosa*, as in *M. brunii* and *M. thetidis*, it is very near its posterior border; whilst in *D. muelleri*, as in *M. major* and most of the other species, it is far forward.

The inferior incisors in *Dorcopsis* are proportionally narrower than in *Macropus*, in which peculiarity *Dendrolagus* resembles the latter genus; they, however, wear down in a similar manner, namely at the anterior end of the supero-lateral margin, differently from that in the Hypsiprymniform Macropodidæ, in which they wear in a rodent-like fashion.

The presence of the superior canines in *Dorcopsis* distinguishes it

from most of the species of *Macropus*, although they are almost as well developed in the subgenus *Lagorchestes* as in *D. luctuosa*, and in that one only.

The premolars of *Dorcopsis* are particularly interesting, presenting characteristic features which are more suggestive of its affinities than any other skeletal point. As to those in the upper jaw, their breadth from before backwards is very nearly or quite as great as that of the first and second molar together with the anterior of the two cusps of the third. The crown of the tooth on each side is prismatic in shape, with one of the angles forming the cutting-edge, the opposite side the base. A tubercle on the inner surface of the posterior end of the tooth disturbs the uniformity of the prismatic shape; it is continued forward along the margin of the lingual surface as a feebly developed ridge or cingulum. Opposite it, on the labial surface, a small tubercle is also to be found, larger in *Dendrolagus*, with a similar, slighter cingular expansion.

From the thus somewhat swollen neck or cingulum several ridges with intervening depressions run at right angles, to end at the trenchant edge. These ridges differ considerably from those observed in the corresponding tooth of the genus *Bettongia*, in other points than their degree of obliquity: they are less numerous, and therefore further apart, because the tooth is considerably broader; and they are continued as what look like tumefactions of their basal ends, into both the inner and outer cingulum. It may be here mentioned that the premolars of *Hypsiprymnus* proper (*H. murinus*, *H. gilberti*, and *H. platyops*) agree much more closely with *Dorcopsis* and *Dendrolagus* in the characters in which those genera differ from *Bettongia*.

The mandibular premolars are much like those in the maxilla. They are not so broad, equalling only the two succeeding molars. They present a tumefaction or cingulum at the base of the crown; but the posterior internal and external tubercles are not developed.

In *Macropus* there is never any thing like the size of the premolars of *Dorcopsis* or *Dendrolagus*, although there is a considerable range of difference in different sections of the genus, which in *Macropus* proper appears to me to be correlated with the length of ear rather than with any other character. In *M. major* their size and permanency is but slight; and in most of the long-eared species they are not so broad as the first true molar. In *M. billardieri* and *M. brunii* they attain their maximum size proportionally; and they are nearly as large in the subgenera *Petrogale* and *Lagorchestes*. In *M. billardieri* and *M. brunii* they are almost exact miniatures of those in *Dorcopsis*, except that the number of perpendicular ridges is fewer.

Respecting the molars of *Dorcopsis* and *Dendrolagus*, they may be termed macropodiform, because, though much resembling those of the type genus, they present special characters. The two transverse prismatic ridges, with the small connecting bridge between them, are present, although the last-named structure is less conspicuous and narrower. The anterior minor ridge is also to be seen;

it is, however, much smaller and narrower than in *Macropus*; as in that genus, it is more marked in the mandibular than in the maxillary molars. The peculiar twist in the molar-premolar series of the lower jaw (the anterior teeth turning outwards and the posterior inwards), by which the trenchant edges are rendered parallel as in the upper jaw, at the same time that the rami of the mandible converge, is, as might be expected from the previously mentioned greater parallelism in the maxillary series of *Dorcopsis*, more marked in that genus than in *Macropus*. It may be mentioned that the molar teeth in *Dorcopsis* and *Dendrolagus* do not exhibit any characters intermediate between *Macropus* and *Hypsiprymnus*.

The remaining bones of the skeleton do not present features of special interest. The typical number of precaudal vertebræ are present, namely C. 7, D. 13, L. 6, and S. 2; there are 19 caudal vertebræ, with well developed chevron bones between the proximal ones. The anterior arch of the atlas presents no gap, the two moieties meeting with a linear junction. The anticlinal vertebræ are the 10th, 11th, and 12th dorsal. The clavicles are fairly developed; and the first ribs are very broad. There is a supra-condyloid foramen to the humerus; and the fibula is not ossified to the tibia. The following are the lengths of some of the most important long bones:—Humerus 2·75 inches, radius 3·2, femur 5·1, tibia 6·2, fourth metatarsal 1·8, pubic symphysis 1·7.

Respecting the soft parts, the tongue has three small circumvalate papillæ at its base, arranged in the ordinary V-shaped manner. The palate presents several strongly marked transverse ridges. The submaxillary and sublingual glands are small, the former ellipsoid in shape. The parotids are large, flat, and triangular, with their bases directed towards the root of the neck, and their apices to the masseter muscle. Their position is indicated by the dotted lines in Plate VIII.

The left lung is formed of a single lobe, with a slight fissure on the ventral margin, near the apex, opposite the broadest part of the heart. The right lung consists of two lobes, the main portion and the azygos lobe. The lobe proper presents two fissures—one near the apex, running vertebally and diaphragmatically, separating an apical lobule, the other running vertebro-apically and marking off the median lobule*. This median lobule partly embraces the base of the heart, as in many animals. There is no third bronchus.

The heart is quite Macropine, there being two superior venæ cavæ. The right ventricle also spirally wraps round the much stronger left, as in *Macropus*.

The stomach is perfectly Macropine; that is, it is elongated, sacculated, with the œsophagus entering it much nearer the cæcal than

* The method of description here adopted is an attempt to avoid the employment of terms which necessitate any assumption with respect to the position of the animal. Supposing the animal to have its vertebral column horizontal, and its four limbs on the ground, then the above description might be thus read:—“The lobe proper presents two fissures—one near the apex, running upwards and backwards, the other running forwards and upwards.”

the pyloric extremity, with the walls of the pyloric end smooth and much thickened. The cardiac cæcal extremity, like that in *Dendrolagus* as described by Prof. Owen, consists of a single *cul-de-sac*, not a bifid one like that in *Macropus giganteus*.

In the subgenus *Petrogale* the stomach is not bifid at its cardiac extremity, in which respect it resembles *Dorcopsis*. In other respects, however, it presents considerable differences; it is more capacious opposite the œsophageal orifice, and the cardiac portion is bent on the rest nearly at right angles, which is not the case in *Macropus giganteus* and *Dorcopsis*.

The character of the mucous membrane also deserves attention. In *Macropus giganteus*, as is well known, the squamous epithelium of the œsophagus spreads over most of the stomach also, the pyloric extremity and one of the two cardiac cæca (which is itself bifid) being alone lined with a columnar coating. In *Petrogale* this latter is absent, the digestive mucous membrane being confined to the pyloric region. Of *Dendrolagus inustus* Prof. Owen remarks*, "the epithelium is continued from the œsophagus, for a breadth of 2 inches down the posterior surface of the stomach, and of $1\frac{1}{2}$ inch down the anterior surface, and thence is continued, slightly diminished in breadth, 3 inches towards the pyloric end of the stomach, and $2\frac{1}{2}$ inches towards the cardiac end. The rest of the cavity is lined with the usual gastric vascular membrane, the surface of which is diversified by patches of follicular apertures along the upper curvature of the stomach, which patches increase in breadth as they approach the true digestive portion." A very similar condition maintains in *Dorcopsis luctuosa*, the only difference being that the squamous lining covering the whole of the cardiac *cul-de-sac* is also found to spread from the œsophageal orifice along the lesser curvature for a short distance towards the pylorus. As in *Dendrolagus inustus*, two strong parallel longitudinal folds run from the œsophageal opening, in this squamous-covered mucous membrane, for some distance on the way to the pyloric compartment, gradually disappearing before they reach it.

The small intestine is 97 inches in length, with numerous oblong Peyer's patches distributed throughout its whole distance, averaging $1\frac{1}{2}$ inch long, by $\frac{1}{3}$ inch across. The cæcum and large intestine are not sacculated; the former has a length of $2\frac{1}{2}$ inches, and its circumference is the same; the latter is 32 inches long, being one third the length of the small intestine, which is the same proportion that Prof. Owen† observed between the same-named viscera of *Dendrolagus inustus*. The equally short cæcum in the *Hypsiprymni* differs in having two lateral longitudinal bands which scarcely sacculate it.

The spleen is perfectly Macropine, being narrow and elongate, with a well-developed third lobule.

The liver very closely resembles that of the different species of *Macropus*. In comparing the livers of different animals it is my habit to estimate by sight, and therefore only approximately, the bulk of the different lobes, and to write down the results in the

* P. Z. S. 1852, p. 105.

† P. Z. S. 1852, p. 106.

form of a formula. Employing the divisions, so evidently natural, proposed by Prof. Flower, I commence by writing down the name of the largest lobe, after which the others in the order of their bulk, with symbols between each to indicate their relative size. Taking the liver-formula of *Dorcopsis luctuosa* as an example, it may be thus written,

$$\text{L.L. } 2 > \text{C. } \frac{1}{2} > \text{R.C. } \frac{1}{2} > \text{Sp.} > \text{R.L. } 2 > \text{L.C.};$$

and it reads as follows:—The left lateral lobe (L.L.) is the largest; it is twice the size of the caudate (C.), which is half as large again as the right central (R.C.), which is half as large again as the Spigelian (Sp.), which is larger (very little) than the right lateral (R.L.), which is twice the size of the left central (L.C.).

The similarly constructed formula of *Macropus melanops* is

$$\text{L.L.} = \text{C. } 2 > \text{R.C. } \frac{1}{2} > \text{R.L. } \frac{1}{2} > \text{Sp. } 3 > \text{L.C.},$$

and of *Halmaturus derbianus*

$$\text{L.L. } 1\frac{3}{4} > \text{C} = \text{R.C. } \frac{1}{2} > \text{Sp. } \frac{1}{2} > \text{R.L. } 2 > \text{L.C.} :$$

they show how great a similarity there is between the different members of the family *Macropidae*.

The gall-bladder is situated in the deep cystic fossa; and the umbilical fissure is not deep. The Spigelian lobe has its apex directed vertebrally and resting on the left lateral lobe, as in *Macropus*; no secondary lobules are connected with it.

There is a peculiarity in the liver of the specimen of *Dorcopsis luctuosa* under consideration, which may be individual, or it may be characteristic of the species, genus, or subfamily; at all events, I have not seen it in any other mammalian animal. Looking at the diaphragmatic surface of any multilobate liver, the lateral margins of the mass formed by the right and left central lobes are always seen to overlap, to a greater or less extent, the lateral lobes in an imbricate manner. Similarly the right lateral lobe overlaps or covers the caudate. In the livers of *Macropus* and *Halmaturus* which I have by me, this conformation is strictly maintained. But in *Dorcopsis luctuosa* the caudate lobe overlaps the right lateral lobe (instead of being situated on its abdominal surface), in such a way that the last-named lobe is only seen between the right free edge of the right central lobe and the left free edge of the caudate. This condition is not brought about by any *post mortem* change in the position of the lobes, because the right lateral fissure is not so deep as to separate them at their vertebral extremity.

The uterus is perfectly Macropine, as are the vaginæ. No direct communication could be found between the uterine pouch of the vaginæ and the common vaginal canal.

A gland, as usual, about the size of an almond, with a slender duct, opens on each side of the narrow cavity included between the sphincter ani and the external common sphincter.

In conclusion, the comparison of the various organs and structures

of the Macropodidæ which have come before me in my study of *Dorcopsis luctuosa* would lead me to divide up the family in the following manner:—

Family MACROPODIDÆ. Diprotodont Marsupialia wanting the hallux, the second and third digits of the pes being much reduced and included in the skin as far as the ungual phalanges, which at the same time have the claws so formed that the inner is convex inwards and the outer convex outwards, at the same time that their contiguous surfaces are flattened. The stomach is elongated and sacculated.

Subfamily MACROPODINÆ. Macropodidæ in which the cesophagus enters the stomach near the cardiac end; with a Spigelian lobe to the liver; with no lateral longitudinal bands to the colic cæcum when it is short, and with radius of normal form.

Section 1. MACROPUS. With the premolars never much larger than the first molar; with a characteristic molar tooth-pattern; with the stomach but slightly lined with digestive epithelium(?) and with the hair on the nape of the neck directed backwards. *Hab.* Australia, Tasmania, Aru, and the Ké Islands.

Genera or subgenera. *Macropus*, *Halmaturus*, *Petrogale*, *Lagorchestes*.

Section 2. DORCOPSIS. With the premolars strikingly large, with a characteristic molar-tooth-pattern, slightly modified upon that of *Macropus*; with the stomach mostly lined with digestive epithelium, and with the hair of the nape of the neck directed forwards. *Hab.* New Guinea and Mysol.

Genus 1. *Dorcopsis*. Limbs Macropine in their proportions.

Genus 2. *Dendrolagus*, *Protemnodon**, *Sthenurus**. Fore limbs much longer than in *Macropus*.

Subfamily HYPsipRYMNINÆ. Macropodidæ in which the cesophagus enters the stomach near the pyloric end; with no special Spigelian lobe to the liver; with lateral longitudinal bands to the short colic cæcum; with a much-flattened and expanded radius, with a characteristic molar-tooth-pattern, and with the incisors worn down much as in Rodent animals. *Hab.* Australia and Tasmania.

Genus *Hypsiprymnus* (including *H. murinus*, *H. gilberti*, and *H. platyops*). Auditory bulla somewhat inflated; palatine foramina, one large one on each side; ridges on premolars few and perpendicular. Face elongate.

* An inspection of the plates in Prof. Owen's paper on these new genera (Phil. Trans. 1873, p. 245), makes it evident that they are scarcely distinguishable from *Dendrolagus*, and must be included in the *Dorcopsis* section of the family.



J.Smt, del. et lith.

M & N. Hanhart, am

CACATUA GOFFINI.



J. Smith del. & lith.

M. McN. H. & C. imp.

CHRYSOTIS BOUQUETI.

Genus *Bettongia* (including all the others of the group except *B. rufescens*). Auditory bulla much inflated; palatine foramina as in *Hypsiprymnus*; ridges on premolars numerous and oblique; head short.

Genus *Æpyprymnus** (including only *Bettongia rufescens* of Gould). Auditory bulla not inflated; palatine foramina absent; head short; tarsus considerably longer than in the two other genera.

It should be mentioned that the visceral anatomy of *Æpyprymnus rufescens* has not been published, and that Mr. Waterhouse divides the genus *Hypsiprymnus* into three subgenera corresponding exactly with the three genera here defined.

My best thanks are due both to Mr. Sclater and to Dr. Günther for the very kind way in which both these gentlemen have assisted me in my study of this subject.

EXPLANATION OF THE PLATES.

PLATE VII.

Lateral superior and inferior views of the skull of *Dorcopsis luctuosa*, natural size.

PLATE VIII.

View of the inferior surface of the neck of *Dorcopsis luctuosa*, showing the median gland with four orifices situated in the hyoid region. The positions of the large parotid and small submaxillary glands are indicated by dotted lines.

PLATE IX.

Teeth, twice the natural size, of (figs. 1-5) *Dorcopsis luctuosa*, (figs. 6-10) *Dorcopsis mülleri*, and (figs. 11-15) *Macropus brunii*. The upper two rows represent the left upper premolar, the third and fourth rows the upper and lower third left molar, and the bottom row the incisors.

2. On some rare Parrots living in the Society's Gardens.

By P. L. SCLATER, M.A., Ph.D., F.R.S., Secretary to the Society.

[Received January 30, 1875.]

(Plates X. & XI.)

The determination of the Parrots in the Society's collection, aided by Dr. Finsch's excellent Monograph, I do not usually find a difficult task. But several of the more recent accessions have caused me some little trouble, and rendered investigations necessary, concerning the results of which, I think, a few notes may be acceptable to naturalists.

In the Society's 'Proceedings' for 1871 (p. 490 *et seqq.*) I distinguished a new species of white Cockatoo from a specimen living in the Gardens as *Cacatua gymnopsis*†, and took occasion to point out the differences between it and its two allies *Cacatua ducorpsi* and *C. sanguinea*, of which living examples were also then in the collection.

* This term I propose for Mr. Waterhouse's first section of *Hypsiprymnus*, which he has left without any Latin name.

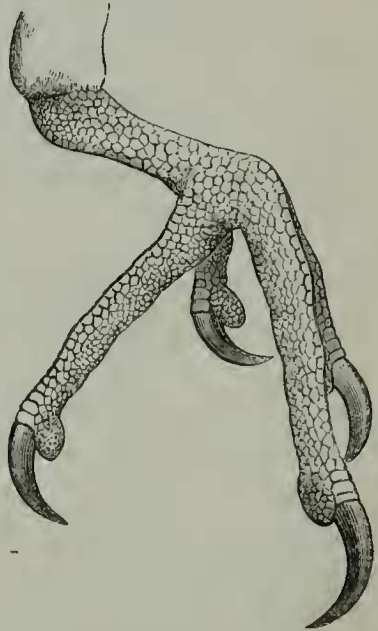
† The type of this species is still alive in the Gardens; and we have also a second specimen, purchased Feb. 15, 1872.

A recent examination of the living specimens of White Cockatoos now in the Society's Gardens has convinced me that we have at the present moment examples of a fourth, nearly allied species, which I had not previously recognized. This is the *Cacatua goffini* described by Finsch* in 1863 from a specimen living in the Gardens of the Zoological Society of Amsterdam. Of this bird we have now three examples alive in the Parrot-house, which have been hitherto wrongly named *Cacatua ducorpsi*†. I also exhibit a skin of the same species from the collection of Messrs. Salvin and Godman. This specimen is of great interest, as it was obtained by Mr. J. T. Cockerell at Coomara in Queensland, about 30 miles from Brisbane, and thus fixes the habitat of *C. goffini*, which was not previously known‡.

I have no means of pointing out the precise differences between *C. goffini* and *C. ducorpsi* of the Solomon Islands, no specimen of the latter being accessible. But it would seem that in *C. ducorpsi* the

Fig. 1.

Fig. 2.

Foot of *Cacatua goffini*.Foot of *Cacatua sanguinea*.

interior of the crest is lemon-yellow, not rosy red as in *C. goffini*§,

* *Plectolophus goffini*, Finsch, Papag. i. p. 308.

† The first is labelled as having been "purchased in 1864;" but this is probably an error; the second was presented by Mr. C. Turner in June 1871, and the third presented by Mr. S. F. Deane in October last year.

‡ Mr. Cockerell tells me he shot this bird in December 1873, out of a flock of the ordinary *Cacatua galerita*, and never met with a second specimen.—P. L. S.

§ I think it possible that the specimen which I spoke of (P. Z. S. 1871, p. 490) as *C. ducorpsi* may not have been really one of the original pair of this species, but an example of *C. goffini*. In spite of every care, labels on living birds are occasionally misplaced, and confusion thus arises.

and that the rosy tinge at the bases of the neck- and breast-feathers is wanting.

From *C. sanguinea*, with which it has been hitherto generally confounded, *C. goffini* is distinguishable not only by the characters pointed out by Dr. Finsch, but also by its much shorter and comparatively thicker toes and claws. This will be at once apparent upon comparing the specimen with the original type of *C. sanguinea*, which Mr. Gould has kindly lent me (see figures, p. 60).

It appears, therefore, that there are *three* different species of the smaller division of White Cockatoos living in Australia, namely:—

1. *CACATUA SANGUINEA*, Gould, from North Australia, figured, Gould, B. Austr. v. pl. 3. The only certain locality for this species appears to be Port Essington, where Mr. Gould's type was obtained.

2. *CACATUA GYMNOPI*S, Sclater, from the interior of South Australia*.

Of this species I exhibit a beautiful figure of the typical specimen described P. Z. S. 1871, p. 493, which Mr. Gould has prepared for his second Supplement to the 'Birds of Australia.'

Both these species are perhaps more correctly referable to *Licmetis*, with which they agree in their long slender toes (see fig. 2, p. 60), naked skin round the eye, and more compressed bill. *C. gymnopsis* is certainly intermediate between *C. sanguinea* and *Licmetis nasica*. It is a larger species than *C. sanguinea*.

3. *CACATUA GOFFINI* (Finsch), from Queensland, of which I likewise show a drawing by Mr. Smit (Plate X.) from one of our living specimens.

Passing to the American Parrots now or lately in our collection, I exhibit the skin of a very fine example of *Chrysotis guatemalæ*, Hartlaub, with the blue head well developed†, the only living example I have ever met with of this species.

I also exhibit an accurate drawing by Mr. Smit (Plate XI.) of *Chrysotis bouqueti* (Bechst.), one of the rarest and least-known species of this extensive genus, from the individual living in our Gardens. I have noticed the arrival of this specimen on a former occasion (see P. Z. S. 1874, p. 323); but it was then in bad plumage. Edwards's figure, upon which the species was originally based, was likewise taken from a living specimen; and there is no example of it in any Museum known to Dr. Finsch. Its correct habitat is, as I had previously conjectured (see P. Z. S. 1874, p. 324), the island of St. Lucia, where Mr. Nevill Holland obtained a living example, which is now in his possession.

Besides these specialities, we have at present examples of several

* As already stated (P. Z. S. 1871, p. 490), there is a specimen of this species in the British Museum, collected by Sturt in the interior of South Australia. It is therefore no doubt the *Cacatua sanguinea* of the Appendix to his 'Travels in Central Australia,' ii. p. 36. In Messrs. Salvin and Godman's collection is also a skin of this bird, obtained from Adelaide, and probably from the same district.

† Purchased April 21, 1870; died Nov. 10, 1874.

other little-known species in our Parrot-house, such as *Chrysotis viridigenalis*, *Lorius tibialis*, *Eos reticulata*, *Pyrrhulopsis tabuensis*, *P. personata*, and *Coracopsis barklyi*.

The whole series of birds of the family in the building consists at the present moment of 186 specimens, belonging to 115 species.

3. List of the Mammals and Birds collected by Mr. Waters in Madagascar. By EDWARD BARTLETT, Curator of the Museum and Public Library, Maidstone.

[Received December 31, 1874.]

(Plate XII.)

I have the pleasure of forwarding to the Society a list of the Mammals and Birds collected by Mr. Waters in Madagascar, which I have observed from time to time in his collections on their arrival, thinking that it may be useful for reference as regards his specimens obtained in that island.

MAMMALS.

1 LEMUR VARIUS, Geoffr.

Interior of Madagascar.

A number of flat skins were in a former collection, and one male and three females are in the present collection, of the black-and-white variety, from the S.E. coast. The sexes are alike in colouring.

2. LEMUR MELANOCEPHALUS (Gray).

Interior of Madagascar.

Male and female of this species in a former collection. They are alike. The head of the male is perhaps a little blacker than the female's.

3. HAPALEMUR GRISEUS, Geoffr.

Tamatave.

A female in the first collection.

4. CHIROGALEUS TYPICUS, Smith.

Tamatave.

A single skin in the first collection.

5. CHIROGALEUS SMITHII, Gray.

S.E. coast of Madagascar.

A female in the present collection.

6. PROPITHECUS DIADEMA, Bennett.

Tamatave and the interior of Madagascar.

Several imperfect flat skins were in the first collection, which varied much in colour, some being iron-grey on the shoulders with pale yellowish fore limbs, and others rich red brown on the fore limbs. In a second collection I received a fine skin in which the red-brown of the limbs was extremely rich, and the grey colour on the shoulders very bright and silvery.



Harberting

PUTAMOUCHERUS EDWARDSI.

J. Smith, lith.

7. *PROPITHECUS EDWARDSI*, Grand.

The two males received from the S.E. coast of Madagascar are brownish black, with the loins yellowish brown, darkish on the middle of the back and belly.

8. *PROPITHECUS CORONATUS*, Grand.

Interior of Madagascar.

Male, female, and young in a former collection. The young one was about half-grown, with the black of the head extending down the neck, and intermixed with brown and yellowish white on the shoulders and fore limbs; loins, hind limbs, and tail yellowish white.

9. *PROPITHECUS DECKENI*, Peters.

Interior of Madagascar.

Two males in a former collection:—one all yellowish white with a blackish spot on the back of the neck; the second was entirely white without the spot.

10. *INDRIS BREVICAUDATUS*, Geoffr.

East of Tamatave.

In a former collection I received a specimen of this species, which was black with the loins white.

11. *CHIROMYS MADAGASCARIENSIS*, Geoffr.

Interior of Madagascar.

A male received in a former collection.

12. *PTEROPUS VULGARIS*, Geoffr.

Tamatave.

13. *PTEROPUS EDWARDSII*, Geoffr.

Males, females, and young are in the present collection, from the S.E. coast of Madagascar.

14. *TAPHOZOUS MAURITIANUS*, Geoffr.

S.E. coast of Madagascar.

A single skin of this rare Bat is in the present collection, called "Manave." Mr. G. E. Dobson has kindly determined the species for me.

15. *CRYPTOPROCTA FEROX*, Bennett.

S.E. coast of Madagascar.

A fine female is in the present collection.

16. *VIVERRICULA SCHLEGELI*, Pollen.

S.E. coast of Madagascar.

Several fine specimens of males, females, and young are in the present collection.

In my specimens of this species the whole of the palm-pad proper and also the pads of the toes are entirely naked.

The skins now before me vary much in colour, some being of a

very pale grey, others of a reddish brown, with the spots less distinct. The colours evidently depend upon the age, because the old female (that was suckling the young at the time she was killed) is much larger and paler in colour than the rest.

Called by the natives of the S.E. coast "Alungar."

17. *GALIDIA ELEGANS*, Geoffr.

S.E. coast of Madagascar.

A female and a young one about half-grown are in the present collection.

The colours of the young are exactly the same as in the adult.

18. *ERICULUS NIGRICANS*.

Tamatave.

19. *CENTETES ECAUDATUS*, Illiger.

One pale-coloured specimen in a former collection from Mauritius, and several reddish-brown specimens from the S.E. coast of Madagascar.

20. *POTAMOCHÆRUS EDWARDSI*. (Plate XII.)

Potamochærus edwardsi, Grand. Rev. Zool. 1867, p. 318; Gray, Ann. N. H. ser. 4, vol. xv. p. 47 (1875).

Potamochærus africanus, Gray, P. Z. S. 1874, p. 206.

Sanglier de Madagascar, Daubenton; Buffon, N. H. xiv. p. 396; Flacourt's Hist. Madagascar, p. 151.

Potamochærus —, Gray, P. Z. S. 1868, p. 38.

Potamochærus madagascariensis, Gray, Cat. Mamm. B.M. p. 344 (1869).

Mr. Waters, in a note to me, says:—"I send the skin and skull of a small species of Wild Boar found on the lowlands, and called "Lamboneive," differing from the upland Wild Boar, which is much larger and called "Lambohava."

The skin and skull now exhibited appear to be referable to the adult of the same animal as that which Dr. Gray described (*l. s. c.*) as the young of *P. africanus*, from a specimen received through me from the same collector.

Mr. Smit's drawing (Plate XII.) is taken from the skin now exhibited.

BIRDS.

1. *BUTEO BRACHYPTERUS*, Pclz.

S.E. coast of Madagascar.

A young female is in the present collection.

2. *TINNUNCULUS NEWTONI*, Gurn.

Andradia, Madagascar.

Specimens were in a former collection.

3. *POLYBOROIDES RADIATUS*, Scop.

East of Tamatave.

An adult female from this locality in a former collection, an adult

male and two young females from Andradia, and a fine adult male in the present collection from the S.E. coast of Madagascar.

4. *BUBO MADAGASCARIENSIS*, Smith.

S.E. coast of Madagascar.

One specimen of this rare bird is in the present collection, called by the natives of the S.E. coast "Vorong-ong-kong."

5. *STRIX FLAMMEA*, Pall.

In a former collection from Tamatave.

6. *EURYSTOMUS GLAUCURUS*, Müll.

Tamatave.

Many specimens in former collections.

7. *CORYTHORNIS CRISTATA*.

Tamatave.

Several specimens in former collections taken near the above locality.

8. *ISPIDINA MADAGASCARIENSIS*, L.

S.E. coast of Madagascar.

Two males and a female of this lovely species are in the present collection, called "Vince-anala" by the natives of the S.E. coast.

9. *MEROPS SUPERCILIOSUS*, L.

East of Tamatave.

Both sexes in former collections.

10. *NECTARINIA SOUIMANGA*, Gm.

East of Tamatave.

Specimens of both sexes in former collections; and two immature males are in the present collection, from the S.E. coast of Madagascar.

11. *ZOSTEROPS MADAGASCARIENSIS*, L.

Tamatave.

In former collections.

12. *CISTICOLA MADAGASCARIENSIS* (Hartl.).

Tamatave.

In a former collection.

13. *EROESSA TENELLA*, Hartl.

Tamatave.

In a former collection.

14. *ELLISIA TYPICA*, Hartl.

Tamatave.

15. *PRATINCOLA SYBILLA*, Gm.

Interior of Madagascar.

Both sexes in former collections.

16. *COPSYCHUS PICA*, Pelz.

Interior of Madagascar.

Two specimens.

17. *GERVAISIA ALBISPECULARIS*, Eyd.

Interior of Madagascar.

A single specimen.

18. *HYPSIPETES MADAGASCARIENSIS*, Müll.

East of Tamatave.

A pair received in the first collection with the nests and eggs.

19. *DICRURUS FORFICATUS*, L.

Tamatave.

20. *LEPTOPTERUS BICOLOR*, L.

Tamatave.

A single specimen in a former collection, and one in the present from the S.E. coast of Madagascar.

21. *TCHITREA MUTATA*, Gm.

Ankavandra, interior of Madagascar.

Male and female in a former collection.

22. *CEBLEPYRIS CINEREA*, Müll.

Ankavandra, interior of Madagascar.

One specimen only.

23. *VANGA CURVIROSTRIS*, Gm.

Tamatave.

In a former collection.

24. *VANGA ? DAMI*, Schl.

S.E. coast of Madagascar.

Two adults and one young are in the present collection.

25. *CORVUS MADAGASCARIENSIS*, Bp.

Tamatave.

26. *FOUDIA MADAGASCARIENSIS*, L.

Tamatave.

27. *AMADINA NANA*, Pucher.

Tamatave.

Eggs pure white.

28. *CORACOPSIS NIGRA*, L.

Tamatave.

Skin and skeleton of this species in a former collection.

29. *COUA GIGAS*, Bodd.

Ankavandra, interior of Madagascar.

30. *COUA CÆRULEA*, L.

Tamatave and the interior of Madagascar.

31. *COUA CRISTATA*, L.

Tamatave and interior of Madagascar.

32. *CENTROPUS TOULOU*, Müll.

Tamatave.

33. *TRERON AUSTRALIS*, Mont.

Tamatave.

34. *TURTUR PICTURATUS*, Temm.

Interior of Madagascar.

35. *PTEROCLES PERSONATUS*, Gould.

Interior of Madagascar.

Male and female in a former collection.

36. *TURNIX NIGRICOLLIS*, Gm.

S.E. coast of Madagascar.

Four eggs of this species are in the present collection.

Ground-colour white, freckled all over with minute spots of pale brown and grey; a number of large dark brown spots are distributed over the surface.

37. *ÆGIALITIS TRICOLLARIS*, V.

Ankavandra, interior of Madagascar.

38. *ARDEA PURPUREA*, L.

Tamatave.

One specimen in former collection, and one in the present from the S.E. coast, both young birds.

39. *ARDEA ARDESIACA*, Wagl.

S.E. coast of Madagascar.

A single specimen is in the present collection.

40. *ARDEA FLAVIROSTRIS*, Temm.

Tamatave.

41. *ARDEA IBIS*, Hasselq.

Tamatave.

42. *ARDEA COMATA*, Pall.

Tamatave.

43. *ARDETTA PODICEPS*, Bp.

Interior of Madagascar.

44. *BUTORIDES ATRICAPILLA*, Afzel.

Tamatave.

45. *SCOPUS UMBRETTA*, Gm.

Tamatave and the interior.

46. *FALCINELLUS IGNEUS* (Gm.).

A single skin of this rare bird (from the S.E. coast) is in the present collection.

47. *GERONTICUS CRISTATUS* (Gm.).

Interior of Madagascar.

A pair in a former collection, and two males and a female in the present collection. They inhabit the dense forests, living in large trees.

48. *HIMANTOPUS CANDIDUS* (Bonn.).49. *RHYNCHÆA CAPENSIS*, L.

A skin is in the present collection from the S.E. coast of Madagascar.

50. *EULABEORNIS BERNIERI*, Bp.

Two males and two females are in the present collection from the S.E. coast of Madagascar, the sexes differing but little in colour or markings.

51. *CORETHRURA INSULARIS*, Sharpe.

Interior of Madagascar.

52. *PORPHYRIO SMARAGNOTUS*, Temm.

Tamatave.

53. *PORPHYRIO ALLENI*, Thomps.

Tamatave.

54. *GALLINULA PYRRHORRHOA*, Newt.

A pair of this species with the eggs were in a former collection from Tamatave.

55. *METOPODIUS ALBINUCHA*, Geoffr.

Tamatave.

56. *NETTAPUS AURITUS*, Bodd.

Tamatave.

57. *DENDROCYGNA VIDUATA*, L.

Tamatave.